USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY

Ohio Academic Standards for Life Science - Grade 10

Lesson	Standard	Description
1, 3	**1.b**	Explain that living cells are the basic unit of structure and function of all living things.
1, 3	**1.d**	Explain that living cells are different from viruses.
3, 4	**27**	Describe advances in life sciences that have important long-lasting effects on science and society (e.g., biological evolution, germ theory, biotechnology and discovering germs).
3, 4	**28**	Analyze and investigate emerging scientific issues (e.g., genetically modified food, stem cell research, genetic research and cloning).

Ohio Academic Standards for Science and Technology – Grade 10

Lesson	Standard	Description
All lessons	**1**	Cite examples of ways that scientific inquiry is driven by the desire to understand the natural world and how technology is driven by the need to meet human needs and solve human problems.
All lessons	**2**	Describe examples of scientific advances and emerging technologies and how they may impact society.
3, 4	**3**	Explain that when evaluating a design for a device or process, thought should be given to how it will be manufactured, operated, maintained, replaced and disposed of in addition to who will sell, operate and take care of it. Explain how the costs associated with these considerations may introduce additional constraints on the design.

Ohio Academic Standards for Scientific Inquiry – Grade 10

All lessons	**2**	Present scientific findings using clear language, accurate data, appropriate graphs, tables, maps and available technology.
1, 2, 3	**3**	Use mathematical models to predict and analyze natural phenomena.
All lessons	**4**	Draw conclusions from inquiries based on scientific knowledge and principles, the use of logic and evidence (data) from investigations.
All lessons	**5**	Explain how new scientific data can cause any existing scientific explanation to be supported, revised or rejected.

Ohio Academic Standards for Scientific Ways of Knowing – Grade 10		
All lessons	**1**	Discuss science as a dynamic body of knowledge that can lead to the development of entirely new disciplines.
2, 3, 4	**2**	Describe that scientists may disagree about explanations of phenomena, about interpretation of data or about the value of rival theories, but they do agree that questioning, response to criticism and open communication are integral to the process of science.
All lessons	**3**	Recognize that science is a systematic method of continuing investigation, based on observation, hypothesis testing, measurement, experimentation, and theory building, which leads to more adequate explanations of natural phenomena.
3	**4**	Recognize that ethical considerations limit what scientists can do.
3	**5**	Recognize that research involving voluntary human subjects should be conducted only with the informed consent of the subjects and follow rigid guidelines and/or laws.

Ohio Academic Standards for English Language Arts – Grade 10		
Lesson	**Standard**	**Description**
2, 3	**Vocabulary 6**	Determine the meanings and pronunciations of unknown words by using dictionaries, glossaries, technology and textual features, such as definitional footnotes or sidebars.
2, 3	**Reading Process 1**	Apply reading comprehension strategies, including making predictions, comparing and contrasting, recalling and summarizing and making inferences and drawing conclusions.
2, 3	**Reading Applications 3**	Evaluate the effectiveness of information found in maps, charts, tables, graphs, diagrams, cutaways and overlays.
3, 4	**Writing Process 6**	Organize writing to create a coherent whole with an effective and engaging introduction, body and conclusion, and a closing sentence that summarizes, extends or elaborates on points or ideas in the writing.
3, 4	**Writing Process 12**	Add and delete information and details to better elaborate on stated central idea and more effectively accomplish purpose.
3, 4	**Writing Applications 4.b, 4.d**	Write informational essays or reports, including research that: provide a clear and accurate perspective on the subject and support the main ideas with facts, details, examples and explanations from sources.
2, 3, 4	**Research 1**	Compose open-ended questions for research, assigned or personal interest, and modify questions as necessary during inquiry and investigation to narrow the focus or extend the investigation.
3, 4	**Research 3**	Determine the accuracy of sources and the credibility of the author by analyzing the sources' validity

		(e.g., authority, accuracy, objectivity, publication date and coverage, etc.).
2, 3, 4	**Research 4**	Evaluate and systematically organize important information, and select appropriate sources to support central ideas, concepts and themes.
Ohio Academic Standards for Mathematics – Grade 10		
Lesson	**Standard**	**Description**
1, 2	**Measurement 1**	Explain how a small error in measurement may lead to a large error in calculated results.
1	**Measurement 4**	Give examples of how the same absolute error can be problematic in one situation but not in another; e.g., compare "accurate to the nearest foot" when measuring the height of a person vs. when measuring the height of a mountain.